

## QoS SCHEDULER AND METHOD FOR IMPLEMENTING QUALITY OF SERVICE WITH AGING TIME STAMPS

### Abstract of the Disclosure

5 A scheduler, scheduling method, and computer program product are provided for implementing Quality-of-Service (QoS) scheduling of a plurality of flows with aging time stamps. Subsets of time stamp data stored in a time stamp aging memory array are sequentially accessed. Each time stamp data subset contains time stamp data for a subplurality of flows. Guaranteed aging processing steps are performed for each flow utilizing the time stamp data subsets to identify and mark invalid calendar next time values. When a new frame arrival for an empty flow is identified, flow queue control block (FQCB) time stamp data and the flow time stamp data in the time stamp aging memory array are accessed. Based on the calendar to which the new frame is directed or the target calendar for the new frame, the target calendar next time valid bit of the time stamp aging memory array data is checked. When the target calendar next time valid bit is on, a target calendar next time value from the flow queue control block (FQCB) time stamp data is compared with a current time. When the target calendar next time is less than the current time, the target calendar next time valid bit is turned off to mark the target calendar next time as invalid. The guaranteed aging processing steps for each flow in the time stamp data subset includes checking a selection indicator of the time stamp aging memory array data for the flow to identify a calendar. Responsive to the selection indicator value, a calendar valid bit is checked. When the calendar valid bit is on, a calendar next time is compared with a current time. When the calendar next time is less than the current time, the calendar valid bit is turned off to mark the calendar next time as invalid. Invalid time stamp values are identified for all scheduler calendars.

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